Framing time in climate change litigation

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Framing Time in Climate Change Litigation

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Abstract

Time is of the essence in relation to climate change. However, there have been few studies of how time features as a frame in legal mobilization against climate change. The current article explores temporal framing in a number of high profile climate litigation cases, including *Urgenda*, *Kivalina*, Kingsnorth, and the current US Our Children's Trust proceedings. I argue that there is a tension between a future-looking scientific framing of time and both an environmentalist policy framing of time and a present-based scientific time frame. Under future-looking scientific framing, the effects of dangerous climate change have not yet occurred and remain some way off in the 'modelled' future. Under an environmentalist policy time frame, action is needed immediately, now in the present, and with a present scientific time frame climate harm is already happening or is imminent.

Key words

Time; temporality; framing; climate change litigation; legal mobilization

Resumen

El tiempo es esencial en relación con el cambio climático. Sin embargo, se han hecho pocos estudios sobre la manera en que se designan los marcos temporales en la movilización legal contra el cambio climático. El presente artículo examina la designación de marcos temporales en una serie de casos jurídicos contra el cambio climático de gran notoriedad pública, como *Urgenda, Kivalina*, Kingsnorth, y los actuales procesos de Our Children's Trust en EEUU. Argumento que hay una tensión entre el marco temporal científico de cara al futuro y el marco temporal de la ciencia basada en el momento actual. Según el marco científico a largo plazo, los efectos peligrosos del cambio climático todavía no han ocurrido y quedan a cierta distancia en un futuro *proyectado*. Bajo el prisma de la política medioambiental, se necesita una acción inmediata, ahora, en el presente; y, de acuerdo con un marco científico actual, el daño climático ya está sucediendo o es inminente.

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Palabras clave

Tiempo; temporalidad; designación temporal; litigios sobre cambio climático; movilización legal

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1. Introduction

Writing in 2015, Adam Crawford observed that there had been little in the way of engagement with time and temporality in the fields of criminology and socio-legal studies (Crawford 2015). Since then – prompted in part by recent emphasis on *the Anthropocene* as a period – work has begun to emerge which looks at the role of time within environmental law (Richardson 2017a, 2017b). While that work discusses issues ranging from *grandfathering* and cost-benefit analysis to sustainable development and adaptive governance, its focus is not specifically on climate change. Time is of course no stranger to academic work on climate change. It has, for example, featured strongly in climate ethics, where ideas of historical responsibility for climate emissions and obligations owed to future generations combine elements of the past, the present and the future (Page 2006, McKinnon 2012). Climate change also involves questions of risk and liability, with discussion around the precautionary principle (de Sadeleer 2016) and, especially post-Paris, loss and damage (Vanhala and Hestbaek 2016, Lees 2017). Risk is very much forward looking, trying – in the present – to anticipate what might happen in the future and with what consequences. Liability, in contrast, looks backward from the present, considering the basis on which current actors might be held liable for their past behaviours (although, insofar as foreseeability is a requirement of liability, it too involves anticipation, in the past, of what was then the future).

Time is inherently connected with space. As Crawford notes, systems of justice and social regulation express "what Bakhtin described as the 'intrinsic connectedness of temporal and spatial relationships'" (Bakhtin, cited in Crawford 2015, p. 472). This is obviously true not only of the criminal, restorative justice system which Crawford is examining, but also of climate justice and regulation. Discussion of both responsibilities for cutting greenhouse gas emissions and compensation for loss and damage are, for example, very much tied in with spatial as well as the temporal considerations examined above. It matters *where* emissions have taken place historically as well as when they occurred because developed countries have emitted more than their fair share during their earlier industrial and consumer revolutions. Developing countries therefore argue that climate justice now requires developed countries to take on the greater burden of reducing emissions and to help compensate those who are unable to adapt and who go on to suffer loss and damage. Questions of scale, and space and place have been explored in socio-legal literature on climate change – especially from a law and geography perspective. Hari Osofsky (2005) has written on the spatial dynamics of climate change litigation, looking in particular at how its multi-scalar properties contribute to transnational governance. In previous work, Lisa Vanhala and I have similarly noted how climate change litigation is often situated in scalar terms, expressed in terms of it helping to fill a governance gap where states and the international community have been slow to act on climate change (Vanhala and Hilson 2013). Graeme Hayes combines both scalar and temporal elements in describing how witness testimony in the Kingsnorth trial of climate activists managed to make the "global, distant, abstract, and immaterial" nature of climate change "relevant to the concrete, material, local, and immediate concerns" of the local citizenry serving on the jury (Hayes 2013, p. 221).

However, while the socio-legal literature on climate change has considered issues of scale and place, it has not really directly tackled time as a separate element.[1] My aim in the current article is to examine the role that time plays in climate change litigation. Like Crawford, I am not suggesting that the temporal can easily be separated from the spatial. Spatial issues often form the background context to much of this litigation – as we have just seen above in the Kingsnorth case. The same is also true, for example, of the *Kivalina* (2012) case where the plaintiffs were seeking damages to pay for spatial relocation as a result of climate change. Nevertheless, I am seeking to focus on the temporal aspects of such cases. And while I am concentrating on the

[1] Richardson (2017a) makes a similar point about environmental law more generally.

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role of time in climate change litigation specifically rather than temporality within climate change more generally, I will inevitably be drawing on those broader debates, which form the background policy context for climate litigation. Equally, I anticipate that my discussion of time in climate case law should also prove instructive in thinking about temporality in climate law and policy more broadly. Whichever way one looks at it, time is of the essence in relation to climate change.

Time is potentially relevant in a number of different respects in relation to climate change litigation. Thus, litigation may, for example, be used as a temporal delaying strategy by the climate movement to drag out the eventual granting of permission to a climate unfriendly development such as a coal mine. However, in examining the role that time plays in climate change litigation, my focus in the current article is on the key types of time *frames* found within legal judgments and litigant submissions or pleadings. I am, in other words, looking at time and time frames within the argumentative context of the cases themselves. After coming up with a number of temporal frames, I argue that there is an important tension between future scientific time frames on the one hand and (environmentalist) policy time frames and present scientific time frames on the other. While time framing is largely irrelevant in most cases in terms of legal doctrine, this is not universally so. In so-called "reactive" climate change litigation involving the prosecution of climate protestors for certain types of criminal offences, I argue that environmentalist policy time framing poses particular doctrinal challenges for the courts. As we shall see, admitting the need for temporal immediacy of (policy) action on climate change in the context of certain defences has the potential to be legally disruptive (Fisher *et al.* 2017).

2. Framing

The article begins with an attempt to separate out different types of time *frames* within the case law on climate change. Time is employed in very different ways both between cases and within them. I argue that it is important to separate them out more systematically because this may prove strategically useful to those engaged in climate change litigation in the future.

Framing is used here to refer to the process of constructing an interpretive view of a phenomenon or issue such as climate change. As Hänggli and Kriesi (2012, p. 266) observe, "[f]raming is the process by which political actors define the issue for their audience (…). A frame highlights some aspects of a perceived reality and enhances a certain interpretation or evaluation of reality". My contention is that time can be considered an important type of frame both within the overall policy debate on climate change and also, more specifically, within climate change litigation. How we see climate change is not a neutral fact existing out there: it is socially constructed and, in putting forward arguments in political campaigning or in court, actors inevitably choose certain frames. Time is a key element in this respect. One might, for example, stress the way in which climate change calls for immediate action rather than further delay (an immediacy frame). Equally, actors may choose to emphasise the impact that climate change will have on future generations of humans (future generations framing or, in purely temporal terms, future framing).

My sense is that while time framing on occasions appears to be a conscious, strategic choice by movement actors[2] – the Our Children's Trust (OCT) deliberate use of future generations described further below is a good example – for the most part time plays more of a background role. In other words, actors employ time discourse during their arguments, but it is probably not conceived of as a separate frame in its own right. My hope is that the current article may lead to a better appreciation of the role that time plays and how it may be consciously and strategically employed in climate change litigation as a frame. In summary then, some time frames are quite apparent and already appear to have been explicitly employed; others are perhaps less obvious

[2] Of course this would require empirical research to establish more concretely.

and one of the aims of the current article is to draw attention to them as time frames that can be consciously used in a similar manner.

3. Research design

In terms of research design, the article's methods are relatively straightforward. The cases I initially selected were those which have become well-known in the existing legal and socio-legal literature on climate change (what one might regard as the "poster child" climate change litigation cases) which I knew from the literature or the cases themselves had a temporal element to them. The *Urgenda*, *Kivalina*, Our Children's Trust (*Juliana*) and Kingsnorth cases fall into this category. These then typically led me to other cases (particularly recent ones) which I then searched for temporal wording (e.g. *immediate*, *imminent*, *urgent*, *future generations*). The Norwegian Barents Sea oil case (*Greenpeace Norden v Norway*) is an example there. The cases come from all over the world – time framing is mostly not particularly legally relevant in a doctrinal sense and hence one need not focus on particular jurisdictions. The exception to this is in relation to cases involving the necessity defence to various criminal charges (which are peculiar to common law jurisdictions such as the UK, the US and Australia).

In setting out different time frames, my aim is not to provide an exhaustive typology. When you look, time in one sense or another is almost omnipresent in the case law. To some extent, there is arguably also a danger of doing with time what Liz Fisher warned against with the precautionary principle – *viz*. "precaution spotting" (or, here, "time spotting"). As she wryly observed, "[t]here seems to be a new and very popular game called 'precaution spotting'. The rules are very simple - each contestant gains points for collecting examples of the precautionary principle in different jurisdictions, whether they be national, trans-national or international" (Fisher 2002, p. 7). My reason for being wary of time spotting is not the same as Fisher's concerns around the precautionary principle, which was that spotting tends to ignore the important context of the specific legal cultures in which examples are found. After all, as I have noted above, in the present context, time typically has no particular role to play within legal doctrine in any event. What I want to do is not merely to collect numerous different examples of temporal language in climate change litigation, but rather to point out some of the key different time frames. The aim is not to arrive at an exhaustive listing of all of the senses or ways in which time is employed, but to separate out what I see as the most significant uses of time, with a view to providing insights for future framing strategy by movement actors.

The number of cases I ended up looking at was relatively small (around ten). After looking in depth at a certain number to ascertain different forms of time reasoning, the core frames emerged through an inductive process. Looking at further cases yielded no further core frames, which suggested that, at that point, data saturation had effectively been achieved.

4. Time Frames

An investigation of the case law revealed several main forms of time framing. First, there are generational time frames. As will be seen in the more detailed section below, the focus tends to be on future generations of humans, but there is often also reference made to present generations and also, on occasions, to past generations. This generational framing tends to map onto what might be regarded as a separate, though linked, type of temporal framing involving one or more of the past, the present and the future. In other words, all of these three can be mentioned without an explicit human generational element. When visible all together (particularly in generational terms), they can be seen as forming a continuity frame. Both the generational and continuity frames are largely about human enjoyment of the benefits of the climate system over time and the negative and irreversible impacts that climate change is causing and will cause in the future. However, there is another

reason for not relying just on future generations or future frames, which is that – in common with scientific framing discussed below – they can end up sending out the wrong, unintended message, to the effect that climate change is something that is only an issue for the future. If it is only an issue for the future then it is all too likely to be discounted.[3]

Second, there are scientific time frames. These may be future looking, present-based or past looking. Future or forward looking scientific time frames have an eye on climate models which tell us that we still have some, albeit limited, time left in the future to take action on climate change before dangerous levels of global warming occur. Past or backward looking scientific time frames are more concerned, in liability suits, with attribution of particular climate harms to historic emitters of greenhouse gases. As we shall see, claimants or plaintiffs have tended to struggle with time here in relation to establishing causation. Closely linked with future looking scientific time frames, but somewhat antithetical to them, are present-based scientific time frames. Rather than claiming we have time left in the future before dangerous climate change really hits us, this frame states that climate harm is either present or imminent – in other words it exists now or is virtually upon us.

Finally, there are policy time frames. An environmentalist policy-based view regards climate change as an "urgent" risk in the sense that it requires "immediate" policy action to be taken by governments to tackle it. Governments are also typically implored to avoid "delay" in doing so. Policy time frames thus have something in common with present-based scientific frames in that they may employ similar language (such as *imminence* and *immediacy*). However, they are different in the sense that present-based scientific frames are about harms being suffered now (or any minute now, as in *imminence*), whereas environmentalist policy time framing is about the need for policy action now (*immediacy*, *without delay*). The following sections will now explore these three different types of time framing in more detail.

4.1. Generational time frames

Like the Philippines Supreme Court *Minors Oposa* (1993) case, the Our Children's Trust (n.d.) cases are typically characterised as lawsuits about intergenerational equity and our responsibilities towards future generations (see e.g. Rogers 2013, 2015). On one level that is of course understandable because the future generations element to such cases is arguably the stand-out legal novelty: can lawsuits be brought on behalf of future generations or otherwise seek to represent their interests? However, as we shall see, in temporal terms, the relevant cases in fact involve not just references to the future, but also the present and the past.

In *Minors Oposa*, a group of children, including those of the well-known environmental activist Antonio Oposa, joined the Philippine Ecological Network to challenge government inaction in tackling deforestation.[4] The children asserted that they represented their "generation as well as generations yet unborn". They claimed that the serious and irreparable harm caused to their generation and to future generations by the continued trend of deforestation was "evident and incontrovertible". They also noted that relevant environmental damage from government-granted rainforest timber licences was "already being felt, experienced and suffered by the generation of plaintiff adults".

[3] This might be both literally and also in terms of economic discounting by applying a discount rate. On discounting and climate change, see e.g. Caney (2014).

[4] Although not framed in terms of *climate change* at the time (but rather one about local environmental degradation), insofar as it deals with deforestation and the depletion of carbon sinks, the case might be seen as a form of non-explicit climate change litigation.

In the (ongoing) OCT *Juliana* case,[5] the plaintiffs are young people from all over the US,[6] ranging in age from 9 to 20, along with the famous climate scientist James Hansen – himself acting as a guardian for future generations – and his granddaughter. Their claim against the US federal government was filed in the US District Court for the District of Oregon in 2015 and has faced a number of challenges seeking to dismiss the case. None of these have proved successful and a trial date has been set for 29 October 2018.

The plaintiffs in the case are alleging that the US federal government and its agencies have, despite knowledge of its significantly harmful climate impacts, allowed fossil fuel exploitation, production and consumption to continue. They argue that their constitutional rights to life, liberty, and property have thereby been breached and, drawing on the public trust doctrine, that the defendants have violated their obligation to hold certain natural resources in trust for the people and for future generations. In terms of remedies, they are seeking a declaration that their constitutional and public trust rights have been violated and an order prohibiting the defendants from violating those rights and directing them to develop a plan to reduce CO^2 emissions.

Also of interest is the case brought by Greenpeace and Nature and Youth against the Norwegian Government in relation to the grant of oil and gas production licences in the (Arctic) Barents Sea (*Greenpeace Norden v Norway*, 2018). Nature and Youth is Norway's largest young people's environmental organisation. Article 112 of the Norwegian Constitution (1814) states that "Every person has the right to an environment that is conducive to health and to a natural environment whose productivity and diversity are maintained. Natural resources shall be managed on the basis of comprehensive long-term considerations which will safeguard this right for future generations as well". The plaintiffs argued[7] that granting petroleum licences is contrary to this constitutional right because the licences will give rise to carbon emissions well into the future and granting permission comes at a time when Norway should be making a committed effort to phase out reliance on fossil fuels. The claim is of interest not only for its future generations time framing – which here is very much aided by the constitutional language of Article 112 – but also, similar to Our Children's Trust, for being brought in part by a youth organisation.

Nicole Rogers has remarked that "the use of children as plaintiffs in the Children's Trust lawsuits constitutes effective symbolism; they provide an embodied representation of the concept of intergenerational equity in the climate change context and their expression of personal grievance and deprivation through lawsuits evokes both guilt and a sense of responsibility in adult spectators" (Rogers 2015, p. 185). These points about symbolism and embodiment are important and can be drawn out further in temporal terms. The *Juliana* case, like other OCT cases and the Norwegian Nature and Youth case above, is noteworthy for the way in which the plaintiff youth effectively act not only as a representation of future generations, but also as a *present* embodiment of that generation. They are in that sense both the present and future at the same time, forming a neat temporal bridge between the two.

And, like the *Minors Oposa* (1993) case which, as we saw above, involved an emphasis on the present impacts on current adults as well as the impacts on future generations, the *Juliana* case similarly emphasises not just the impacts of climate change on the children's future selves, but also its impacts on their lives in the

[5] The *Juliana* case is just one of many OCT, public trust-based cases that have been brought in the US courts. It is focused on here because it is the one that has proceeded the furthest to date and where a full trial is due in the near future.
[6] Although the majority of the youth plaintiffs, including the lead plaintiff Kelsey Juliana, are resident in the District of Oregon where the case was filed.
[7] Unsuccessfully at first instance. The case has since been taken to appeal.

present. It further adds to this temporal range by referencing the past. In relation to effects felt in the present, the plaintiff submissions state that:

> Youth Plaintiffs are suffering both immediate and threatened injuries as a result of actions and omissions by Defendants alleged herein and will continue to suffer life-threatening and irreversible injuries without the relief sought. (*Juliana v US* 2015, para. 96)

This is accompanied by more concrete and relatable people-scale narratives provided in relation to individual youth plaintiffs. Thus, for example, we are told in relation to one of the plaintiffs that:

> The impacts from climate change caused by Defendants are harming and will continue to harm Avery and her enjoyment of and interaction with nature and wildlife. Avery's favorite activity is swimming in natural bodies of water. Avery and her family enjoy boating, hiking, backpacking, camping, and watching salmon spawn throughout Oregon. In 2015, Avery was not been able [sic] to participate in these recreational activities as frequently as past years due to warmer temperatures, drought, low water levels, forest fires, and algal blooms. The 2015 summer heat has caused Avery to avoid outdoor activities to prevent becoming overheated. Avery also suffers from allergies, which will worsen with increased pollen count and a changing climate caused by Defendants. (*Idem*, para. 41)

While this statement about Avery clearly documents effects felt by her in the present, a number of other personal stories also weave in connections back to the past. This helps to provide a sense of temporal continuity, giving rise to the expectation that this will be maintained and not extinguished by climate change:

> Alex lives on his family's 570-acre farm, the Martha A. Maupin Century Farm ('Maupin Century Farm'), located along the Umpqua River. His great, great, great, great grandmother, Martha Poindexter Maupin, founded the farm in 1868 (she was one of the first women in Oregon to own a ranch) after arriving in the area by way of the Oregon Trail. The Maupin Century Farm is Alex's intellectual and spiritual base and a foundational piece of his life and heritage, and his identity and wellbeing depend on its preservation and protection. However, the drought conditions, unusually hot temperatures, and climate-induced migration of forest species are harming and will increasingly harm Alex's use and enjoyment of the Maupin Century Farm. (*Idem*, para. 24)[8]

As outlined earlier, one might easily see this in framing terms, with this narrative linking between the past, present and future amounting to a continuity frame. Such temporal framing has an increased resonance when tied to continuity around place, which one finds with Alex's family farm here.

In his scientific, expert witness-type contribution, James Hansen also touches, at various points, on the past, the present and the future. In relation to the past, he stresses the services that the climate has provided over generations:

> by exacerbating or locking-in Earth's energy imbalance, such government action jeopardizes the signal features of the relatively benign and favorable climate system that, over the last 10,000 years, enabled civilization to develop and nature to thrive, as I have discussed. These features included relatively stable coastlines, moderate weather, fertile soils, and dependable hydrological systems – the natural capital on which the lives of Plaintiffs depend no less than did the lives of their parents and their forebears. (Hansen 2015, para. 71)

Of the present, instead of stressing the usual environmental disbenefits already being felt by certain communities as a result of climate change, he claims that the current generation will be the last to experience the economic benefits of fossil fuels:

[8] Elsewhere it similarly states: "The Maupin Century Farm has been passed from generation to generation in Alex's family, and in many ways Alex's future depends on that family farm. He would like to reside at, raise children on, and retire to the Maupin Century Farm, but he is concerned about how it will be further damaged by climate change caused by Defendants" (*Juliana v US* 2015, para. 28).

> While prior generations and, to a certain extent, some in our present generation have benefitted and, even, been enriched by the exploitation of fossil fuels, our children and their progeny will not similarly benefit. (*Idem*, para. 74)

Finally, in relation to the future, Hansen returns to listing a range of environmental harms that are likely to be experienced by future generations as a result of unabated greenhouse gas emissions:

> If fossil fuel emissions are not systematically and rapidly abated, as I have discussed above – including in the materials that I have incorporated by reference – then Youth and Future Generations Plaintiffs will confront what reasonably only can be described as, at best, an inhospitable future. That future may be marked by rising seas, coastal city functionality loss, mass migrations, resource wars, food shortages, heat waves, mega-storms, soil depletion and desiccation, freshwater shortage, public health system collapse, and the extinction of increasing numbers of species. That is to mention only the start of it. (*Idem*, para. 74)

4.2. Scientific frames

As we have seen above, scientific time frames may be future looking, present-based or past looking. Future looking scientific time frames are ones where the effects of dangerous climate change have largely not yet occurred, remaining some way off in the modelled future. This takes us into the territory of the Paris Agreement, where states agreed to limit global warming well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C. On the basis of current nationally determined contributions under Paris, the evidence suggests that the 2° target will not be met:

> Current policies presently in place around the world are projected to reduce baseline emissions and result in about 3.6°C warming above pre-industrial levels. The unconditional pledges or promises that governments have made, including NDCs as of 1 November 2016, would limit warming to about 2.8°C above pre-industrial levels (…) both the current policy and pledge trajectories lie well above emissions pathways consistent with the Paris Agreement long-term temperature goal. (Climate Action Tracker n.d.)

However, it is also clear that we do still have time to stave off climate change taking us to temperatures above 1.5°C. As Climate Action Tracker observes:

> even starting from emission levels implied by INDCs and current policy projections, 1.5°C and 2°C pathways are still technically feasible. However, the resulting emission pathways are increasingly expensive as they are not consistent with the most cost-efficient policies. Slower-than-optimal emission reductions early on need to be followed by faster reductions later on, effectively leading to significantly higher costs for the period 2030–2050 than would otherwise be needed. While the challenges are significant, limiting warming to below 1.5°C by the end of the century is still feasible from current emissions levels. However, with every decade lost, these challenges and costs rise and will, at some point, become insurmountable with warming locked in to 1.5 or 2°C and above. (*Idem*)

This scientific time frame has found its way into some of the climate cases. Thus for example in his submission as part of the OCT *Juliana* litigation, James Hansen comments that "[t]here is still time and opportunity to preserve a habitable climate system – if we pursue a rational course. I will outline the glide path that we think remains feasible" (Hansen 2015, para. 19).[9]

Hence the future scientific time frame tells us that, based on scientific models, we do still have time[10] to avoid dangerous global warming and to keep within the Paris temperature goals. Dangerous temperatures above those goals are not yet with us,

[9] To similar effect, see the Urgenda Foundation summons (Urgenda 2014, paras. 23-24).
[10] We do also still *need* time: "Of course, an abrupt cessation of all CO^2 emissions, whether this year or in 2030, is unrealistic. Industry, other business, and consumers all need time to retool and reinvest in emission-free options to fossil fuels" (Hansen 2015, para. 64).

remaining some way off in the future. In that sense they are not an immediate or imminent risk.

Other cases have emphasised much more of a present-based scientific time frame. Thus in the *Urgenda v Netherlands* (2015) case, the court described Urgenda's case as claiming, *inter alia*, that "[t]he greenhouse gas emissions in the Netherlands additionally contribute to the (imminent) hazardous climate change" (para. 3.2);[11] and, in its final order itself, the court stated that "[t]he State must do more to avert the imminent danger caused by climate change". Similarly in the *Kivalina v ExxonMobil* (2012) case where a Native American community in Alaska was seeking compensation for climate resettlement, the villagers alleged that Exxon, the oil and gas supermajor, emitted "massive amounts of greenhouse gases that contribute to global warming which, in turn, has severely eroded the land where the City of Kivalina sits and threatens it with *imminent* destruction" (p. 11648, emphasis added). The present-based scientific time frame is essentially claiming that climate harms are already happening in the present or are imminent. This of course relies on current extreme weather events (including storm surges affecting coastal villages like Kivalina) being scientifically attributable to climate change. That remains a developing area within climate science. While it may be possible to attribute certain extreme weather events to global warming (e.g. those directly associated with heating such as more extreme heatwaves) – this is not yet possible for the full range of potential climate impacts. The extent to which one can legitimately state that climate harm is present or imminent is therefore limited.

Kivalina (2012) is also a good example of a case containing a past or backward looking scientific time frame. The township alleged that Exxon "knew that their individual greenhouse gas emissions were, in combination with emissions and conduct of others, contributing to global warming and causing injuries to entities such as the Plaintiffs" (p. 11675). In other words, it was, they argued, foreseeable at the time that their emissions would contribute to climate change harms as a type of damage. This past knowledge, albeit based on foreseeability of the future, is central to nuisance claims like that of the plaintiffs against Exxon here.

However, the court's rejection of Kivalina's case in the end turned mostly on factual causation and the inability of the plaintiff's to single out Exxon's precise contribution to their injury from a vast array of emitters. This rejection was itself very much couched in the language of time:

> Further, Kivalina's allegations of their injury and traceability to Appellees' activities is not bounded in time. Kivalina does not identify when their injury occurred nor tie it to Appellees' activities within this vast time frame. Kivalina nevertheless seeks to hold these particular Appellees, out of all the greenhouse gas emitters who ever have emitted greenhouse gases over hundreds of years, liable for their injuries. (*Kivalina* 2012, p. 11675)

4.3. Environmentalist policy time frames

In judicial review-type climate cases, future looking scientific time frames are typically accompanied by environmentalist policy time frames which stress that climate change is an "urgent" problem, with governments encouraged to take "immediate" action now to tackle it, avoiding "delay" in doing so.[12] The appeal (especially for developing countries) may be to take action on adaptation. In the

[11] Cf. n. 13 below however – in reality, Urgenda's case involved much more like a future scientific time frame (matched with an environmentalist policy time frame described further in the main text below).

[12] Note that, in describing a "scientific time frame", I am not claiming that science does not sometimes, or often even, itself step over into what I have characterised as a separate, policy-making one. For example, in the context of Paris, Jacqueline Peel *et al*. state that: "Moreover, in pushing out the start date of any new climate change international legal arrangement to 2020, the disjuncture between climate change science (urging immediate action), and the international political process has been starkly highlighted" (Peel *et al.* 2012, p. 247). I am merely suggesting that it is useful to separate out the two types of time frames and *scientific* is the ideal typical category I happen to have chosen for the first one.

Lahore *Leghari v Pakistan* case (2015), for example, the judge, Syed Mansoor Ali Shah, states that: "[a]s Pakistan is not a major contributor to global warming it is actually a victim of climate change and requires immediate remedial adaptation measures to cope with the disruptive climatic patterns" (para. 3). However, more typically (and especially for developed countries), it involves a call for mitigation. Hence, in the *Juliana* case, Hansen directly follows the statement quoted above about still having time with the comment: "though further *delay* in taking effective action will consign that effort to failure. Objectively, then, the situation is *urgent* and what governments and other decision-makers do, or do not do, today to reduce carbon pollution matters immensely" (Hansen 2015, para. 19, emphasis added).

The main Youth submission similarly states that "[a]bsent *immediate*, meaningful action by Defendants to cease their permitting, authorizing, subsidizing, and supporting fossil fuel exploitation, production, and consumption, and otherwise to act to phase-out CO^2 emissions, Plaintiffs would suffer increasingly severe consequences" (*Juliana v US*, para. 97, emphasis added). This quote makes it quite clear that the kinds of actions expressed as needing to be done immediately are very much policy actions – hence the policy time frame. I have chosen to call it an "environmentalist" policy time frame because those leaning more towards the climate-sceptic right would not regard the need for policy action as immediate. They would play for time and prefer a policy of wait and see. In truth, however, the environmentalist position is, in this context, very much the mainstream one. In other words, use of the environmentalist epithet should not be taken as expressing a particularly radical position in climate policy terms.

There is thus a tension or dissonance (although no necessary incompatibility) between a future looking scientific approach to time – one where the effects of dangerous climate change have not yet occurred and remain some way off in the modelled future – and an environmentalist policy approach to time, where action is needed immediately, now. A tension also exists between future and present scientific time frames, with one emphasising future damage and the other pointing to the fact that it is happening now. Of course no such tension exists between the present-based scientific time frame and the policy time frame: for both the problem is current, imminent or immediate. Thus, whether one sees climate change as an immediate risk depends on which view of time is adopted. A future, effects-based scientific view would argue that it is not an immediate risk because the world has not yet warmed by the scientifically established amount (1.5-2°C) at which point climate change is assumed to become dangerous. A policy-based view, in contrast, regards climate change as an immediate risk in the sense that it is a risk that requires immediate action. A present-based scientific time frame argues that some climate change harms are already happening or about to happen (even if dangerous global warming in the 1.5-2°C range is not yet upon us) and hence that the risk is present or imminent. However, as we have seen, this present-based time frame may well pose attribution problems. In any event, where one sees what may appear to be a present-based scientific time frame (as in the *Urgenda* judgment quoted above), it is conceivable that what is really meant is a policy time frame and that confusion has resulted in the present-based scientific version being wrongly used instead.[13]

The tension between future scientific time frames and policy time frames is not particularly an issue within proactive judicial review-type cases such as *Juliana*, where, as we saw in relation to James Hansen's evidence, both time frames can sit relatively happily together. Where the policy frame and indeed the present scientific time frame – i.e. both immediate-type frames – do pose problems is for the criminal courts in certain reactive climate change litigation cases. Reactive cases involve climate activists taking protest action and then facing criminal prosecution (Hilson 2012, Hayes 2013). They have then often sought to raise defences which allow scope

[13] I am not suggesting that *Urgenda is* an example of such confusion – just that it *could* be and that litigants and courts should be careful with which frame they really mean in a particular context.

for them to make broader political arguments about climate change and their motivations for action. In the famous UK Kingsnorth case (2008), which involved painting a slogan on the chimney stack of a coal-fired power station, the protestors were also able to call upon the scientist James Hansen as an expert witness in their subsequent trial for criminal damage.

In his evidence in Kingsnorth, Hansen himself adopts both a future scientific time frame and a policy time frame:

> It will be necessary to return atmospheric CO^2 to 350 ppm or lower on a time scale of centuries, if we hope to avoid destabilization of the ice sheets, minimize species extinctions, and halt and reverse the many regional climate trends discussed above. *There is just barely still time to accomplish that*, but it *requires an immediate moratorium* on new coalfired power plants that do not capture and sequester CO2 and a phase out of existing coal plants over the next 20 years. (Hansen 2017, p. 10)

He also speaks of the defendants' actions with reference to both present and future generational time framing, stating that a "realization that the actions needed to protect life and property of the present and future generations were not being taken undoubtedly played a role in the decision of the defendants to act as they did" (*Idem*, p. 14).

However, from a specific time perspective, Hansen's evidence is not really directly on-point for the defence of lawful excuse raised by the defendants in relation to their criminal damage charge. Like the necessity defence more typically used in climate change cases (Schwarz 2010), lawful excuse requires protestors to demonstrate that they are acting to prevent an immediate risk of harm – here from global warming. In this respect, the evidence of the Inuit also heard in the case was arguably more relevant, as this involved details of damage presently being suffered by their coastal communities because of climate change. As Inuit leader Aqqaluk Lynge stated:

> Climate change affects my community, the Inuit people, by affecting their environment, which we see is more polluted due to increased shipping, the kind and numbers of species that they hunt, the house and camp constructions that they have to build on melting and unpredictable soils, the unpredictable weather (…) the sliding of houses into the sea (…) the reduction of habitats for polar bears and other species, and the introduction of new pest species. (Aqqaluk Lynge, quoted in Greenpeace UK 2008)

In the end, the protestors were acquitted by the jury. However, this famous jury trial acquittal in a case of reactive climate change litigation clearly had the capacity to be legally disruptive. Fisher *et al*. (2017) argue that climate change is highly disruptive of adjudicative processes and discuss a number of instances where courts have struggled to recognise climate change within existing legal doctrine, such as laws on standing or justiciability. Although they do not analyse criminal cases, their arguments also apply to reactive climate change litigation, which has the potential to be disruptive in terms of the wider criminal law. A criminal court cannot easily admit an environmentalist policy time frame, saying that immediate policy action is required by politicians, because defendants are likely to be arguing that this immediately required policy action has been lacking and that this is precisely what justifies their protest action and provides a lawful excuse for it. Neither can such a court easily admit a present scientific time frame, because to admit that climate change is causing present damage to others is also potentially to provide protestors with an automatic workable defence to some of the key criminal charges that might be brought against them. Criminal courts, in other words, may be reluctant to admit or affirm such frames because of a fear of the consequences – not for climate change (which may be positive), but for law and order. They are, in effect, potentially caught between a rock and a hard place: they cannot easily deny the need for immediate policy action or the science of present harm (for fear of appearing like climate deniers); however neither can they easily admit, as a matter of law, either of the respective time frames

associated with these (for fear of acquitting those they see as having broken the law and deserving of sanction).

The *Basto* case (*R v Basto*, 2016), involving climate protestors from Plane Stupid, provides a good example of a UK court finding a way around this conundrum in relation to the present science time frame. The activists were charged, inter alia, with aggravated trespass for illegally entered the northern runway at Heathrow Airport and erecting a structure which resulted in the suspension of flights for several hours. The judge noted that each of the defendants believed that "[c]limate change is already causing deaths around the world as a result of storms, droughts, floods and other catastrophic weather related events" and that "unless something is done to reduce carbon emissions climate change that is likely to be catastrophic to mankind will occur. The need to change is urgent" (*R v Basto*. 2016, para. 39). What we see here on the part of the defendants, in other words, is a present scientific time frame ("already causing deaths") followed by a future time frame (catastrophic climate change "will occur") and a policy time frame ("urgent" need to change). However, in rejecting their necessity defence the judge ruled as follows:

> None of the defendants knew of anyone who was at immediate or even impending risk of death at that point, either locally or worldwide. When asked, as they all were about what or who they believed to be at imminent risk of death or serious injury on the 13th July 2015, no-one named anybody in particular. Apart from the generic risk of death from the effects of climate change globally and pollution locally, which the defendants believe is created by emissions, there was nothing to suggest that there was any particular risk that day (…). I found the defendants' actions were symbolic and designed to make a point, not to save lives. Because of the very limited impact that the defendants' actions would have had on climate change globally or on harmful polluting emissions in the surrounding areas of the airport, I did not accept that that they believed that there was any prospect that what they did could have saved lives or prevented serious injury. It goes without saying that I am not satisfied, therefore, that the defendants did believe that their actions were necessary to save life or prevent serious injury full stop, let alone in the very exceptional circumstances that would afford them a defence of necessity or duress of circumstances. The defence must therefore fail. (*R v Basto*, 2016, paras. 47-50)

Thus, rather than entirely rejecting the present scientific time frame (which, as we have noted, is scientifically difficult for a court), the judge instead made it clear that he was looking for a very clear causal link between the action of the protestors in disrupting flights and preventing a specific serious present harm caused by climate change on that day. In this way, the judge managed to avoid legal disruption. One could still admit that climate change was causing present harm. However, it was not enough for the defendants to point to this is a generic sense; rather they had to establish that their action reduced emissions and that they could show that this prevented someone, somewhere specific, from suffering serious climate change injury. However, as the judgment makes clear, they were unable to do this because even if they could show that flights cancelled as a result of their action led to reduced carbon emissions, these were likely to have been cancelled out by knock-on effects such as increased stacking and re-routing.

US courts have taken a variety of approaches in reactive climate change litigation. In the Flood Wall Street 10 case, a number of activists protesting against Wall Street's involvement with fossil fuels were prosecuted for disorderly conduct and sought to raise the necessity defence. The judge acknowledged the seriousness of climate change, but disallowed the defence, ruling that climate change involved "generalized and continuing harm" rather than the required imminent threat of injury (Nathanson 2015). In the *Delta 5* case (*Washington v Brockway*, 2016), protestors were prosecuted for attempting to block an oil train. While the judge initially allowed the activists to present the necessity defence, in the end he instructed the jury to ignore it, ruling that the defendants had failed to prove that alternative, lawful avenues to address climate change were unavailable (Carswell 2016, Long and Hamilton 2017). The former case seems to require climate harm to be linked with a specific time and

place, arguing that it is, instead, spatially diffuse and temporally continuing. The latter case is more like *Basto* (2016) in the sense that it turns to causation to rule out the defence. However, rather than requiring protestors to show that their actions were causally sufficient to prevent specific harm, here they were required to demonstrate that no other lawful action such as lobbying could have caused the policy change needed to prevent harm.

5. Conclusion

We have seen that climate science is linked to the temporal aspects of climate change in three senses. First, there is the debate about what GHG emissions are required to keep us within the two degrees warming threshold, above which climate change is widely considered to be dangerous. Time here becomes a matter of how long we have left, based on climate modelling, to take action before we reach two degrees. The risks of climate change here lie in the future. Second, there is an attempt by climate science to discuss the here and now – the present. So for example, while not able to attribute causal responsibility for particular cyclonic activity to climate change, climate scientists have nevertheless shown a degree of correlation between warming and the prevalence of extreme weather events. And third, climate science may be used to try to attribute liability to major GHG emitters for their past, historical emissions. When we see such arguments presented in court cases, these represent future, present and past scientific time frames respectively.

With the first of these, the science may be telling us that most harm remains some way off in the future; however, because it is not *that* far off and because, if we do not cut emissions, the harm will be even more serious, then we should be making such cuts immediately. The science tells us that most of the harm is not imminent – it lies in the future as a risk; but it also signals to us that the need for preventive policy action on mitigation is immediate in order to avert that future risk. This is the environmentalist policy time frame.

I have argued that there is potentially a tension between future scientific time frames and both environmentalist policy time frames and present scientific time frames, with the former emphasising the future and the latter two the present. However, in most cases this tension is not a particular source of problems: the frames often sit quite happily side by side. There is also scope for confusing time frames which look similar. It is, for example, easy to imagine present scientific time frames and environmentalist policy time frames getting mixed up, unless ones is clear that the former is talking about present or imminent *harm* and the latter about the need for immediate *policy* action.

I also argued that time frames have the potential to cause legal disruption, particularly in reactive climate change cases. We saw there that the courts are placed in a difficult position. On the one hand they cannot easily admit that climate change harm is happening or that avoiding future climate change requires immediate action, because this could provide protestors with a legitimate defence for civil disobedience which the courts are reluctant to condone. On the other hand, it is increasingly difficult for anyone, let alone a public body like a court with claims to legitimacy, to deny the realities of climate change. In the end, we saw that the courts have managed to avoid legal disruption by a variety of routes, including requiring very precisely traced causation, which few protestors will be able to satisfy.

Finally, scientific and policy time frames are somewhat abstract and impersonal. They are not frames which are likely to resonate with the broader public outside the court room. Generational time frames – which are typically associated with a compelling human narrative appealing to place as well as time – are much better in this respect. As in the Our Children's Trust cases, social movements should therefore consider employing the latter as well as the former frames.

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